



ARCHITECTURE STUDENT CONTEST
20th INTERNATIONAL EDITION, NORD ISÈRE 2025



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VILLEFONTAINE
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CHIMILIN
POPULÁCIA: 1 403

THE SITES



Villefontaine



Chimilin

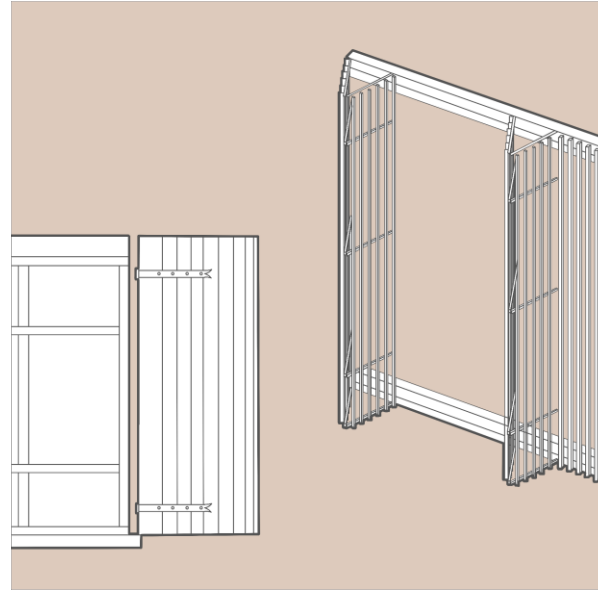
 green area
 roads

**HOW WE CONNECTED THESE PLACES THROUGH
DESIGN TO CREATE A STRONG, UNIFIED IDENTITY?**



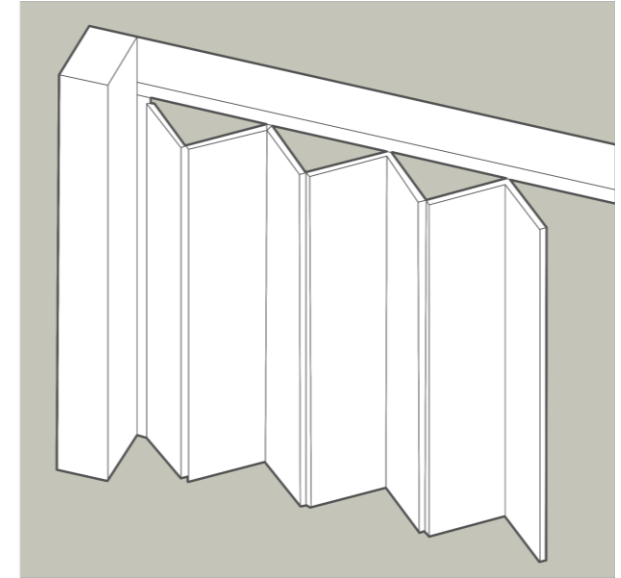
PHILOSOPHICAL CONNECTION

Creating human-centered spaces by encouraging social interaction, supporting local communities, and promoting a shared philosophy of sustainability. Strengthening local identity and building meaningful connections between people and place.



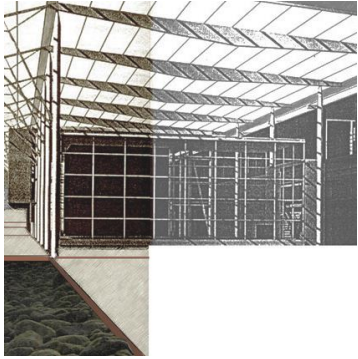
VISUAL CONNECTION

Reinterpreting the traditional window shutters as façade shading. Creating a strong and recognizable visual identity while respecting the local architectural character and connecting both sites through design.



TECHNICAL CONNECTION

Using a modular system based on a shared grid and CLT panels. Allowing flexible use of space through sliding walls and curtains, supporting adaptability, efficient construction, and long-term sustainability.



HISTORY

LOCAL IDENTITY

CONNECTING

CHIMILIN





IDENTITY WINDOW SHADING FACADE SHADING

The facade shading system takes inspiration from traditional shutters commonly found in the region. While reinterpreted in a contemporary way, the vertical elements maintain a similar form and rhythm, creating a visual and cultural link to the local architectural heritage. This approach blends historical context with modern functionality, offering solar protection while respecting the character of the place.



CHIMILIN. — École de Filles

ARCHITECTURE
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PAGES



ÉCOLE LAZZINI FILLES



**MULTIFUNCTIONALITY
FLEXIBILITY
COMMUNITY**



SITUATION



SUSTAINABLE CONSTRUCTION STRATEGY

The renovation of the Chimilin School addresses sustainable construction through a series of well-integrated architectural and technical solutions that improve the building's energy performance, reduce its carbon footprint, and enhance user comfort and accessibility.

ENERGY & CARBON PERFORMANCE

The project enhances energy efficiency by improving the thermal performance of the building envelope, integrating full facade shading inspired by traditional shutters to reduce overheating and control solar gains. The reinterpreted shutters not only serve as passive shading devices but also maintain the building's historic identity. The renovation strategy aims to minimize operational energy demand through flexible interior partitions, which help reduce HVAC loads by allowing zones to be closed off when not in use.

CIRCULAR ECONOMY & MATERIAL STRATEGY

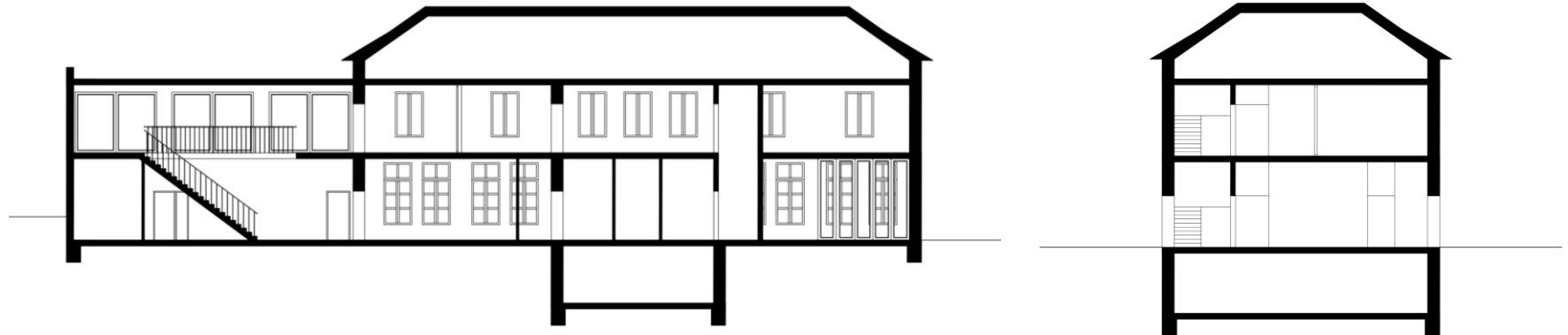
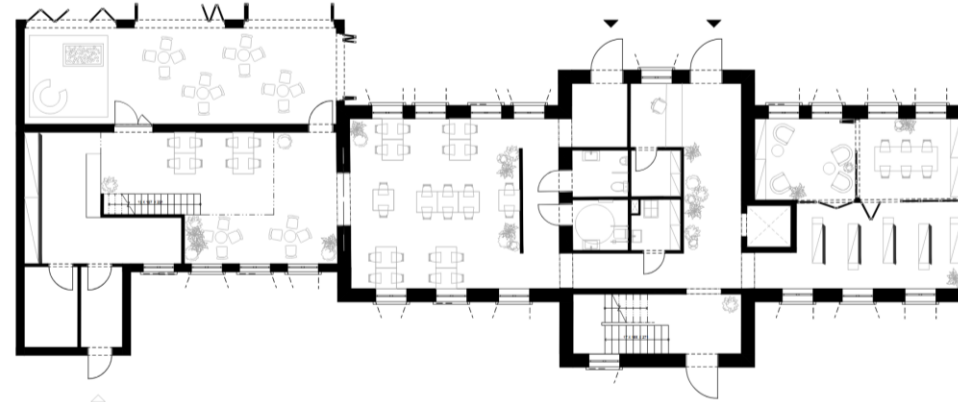
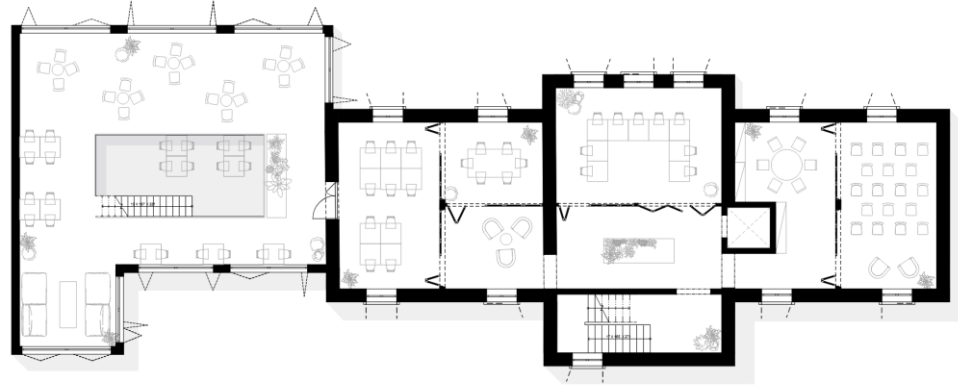
The renovation promotes circular economy principles by preserving the original building structure and minimizing the need for new construction. Durable and low-impact materials are prioritized, while components such as sliding walls and mobile partitions are designed for long-term adaptability and reuse. By extending the building's lifespan and allowing it to serve multiple functions, the project reduces embodied carbon and resource consumption over time.

HEALTH, WELLBEING & SAFETY

The project significantly improves indoor environmental quality through natural lighting, flexible layouts, and thermal comfort strategies. A new elevator has been added to ensure barrier-free access, supporting inclusivity for elderly users, individuals with disabilities, and families with young children. This enhances not only mobility but also social sustainability. Furthermore, acoustic comfort is supported through interior materials and partitioning, while the building meets fire safety requirements for mixed-use public spaces.

CONSTRUCTION QUALITY & FEASIBILITY

The construction strategy prioritizes technical soundness, addressing thermal bridges and airtightness to ensure energy efficiency. Moisture management is handled through careful envelope detailing. The proposed solutions are grounded in long-term durability, ensuring that the building can be maintained efficiently while supporting sustainability goals. The clear separation of technical systems and flexible spatial divisions contributes to efficient maintenance and low environmental impact throughout the building's lifecycle.



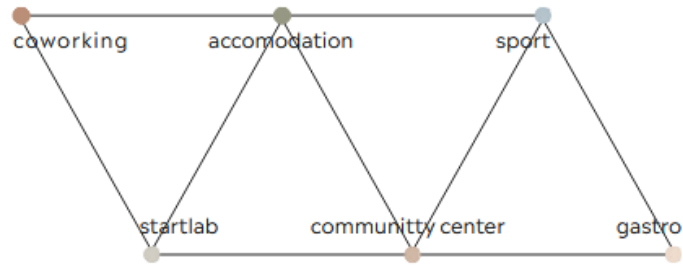
VILLEFONTAINE





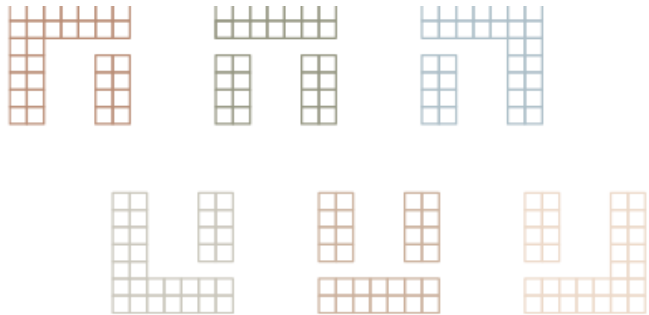
SCHWARZPLAN

The campus is thoughtfully integrated into the existing urban area, respecting the architectural character of the surroundings and emphasizing a strong sense of community. The design encourages social interaction and shared public spaces, while ensuring a seamless connection with the surrounding neighborhood and its daily life.



1. DEFINING URBAN STRUCTURE

Identifying the main community centers and linking them together to create the basic spatial layout of the site, while dividing the land into functional use zones.



3. SHAPING AND CONNECTIONS

The mass is adjusted to create main entrances and U-shaped forms, with building connections opening views and encouraging interaction across the site.



2. MAIN AXIS AND MASSING

The massing is organized along a main axis, based on a grid from our chosen module. Inspired by french urbanism and human movement, the axis leads to a central dominant feature



4. THE FINAL FORM

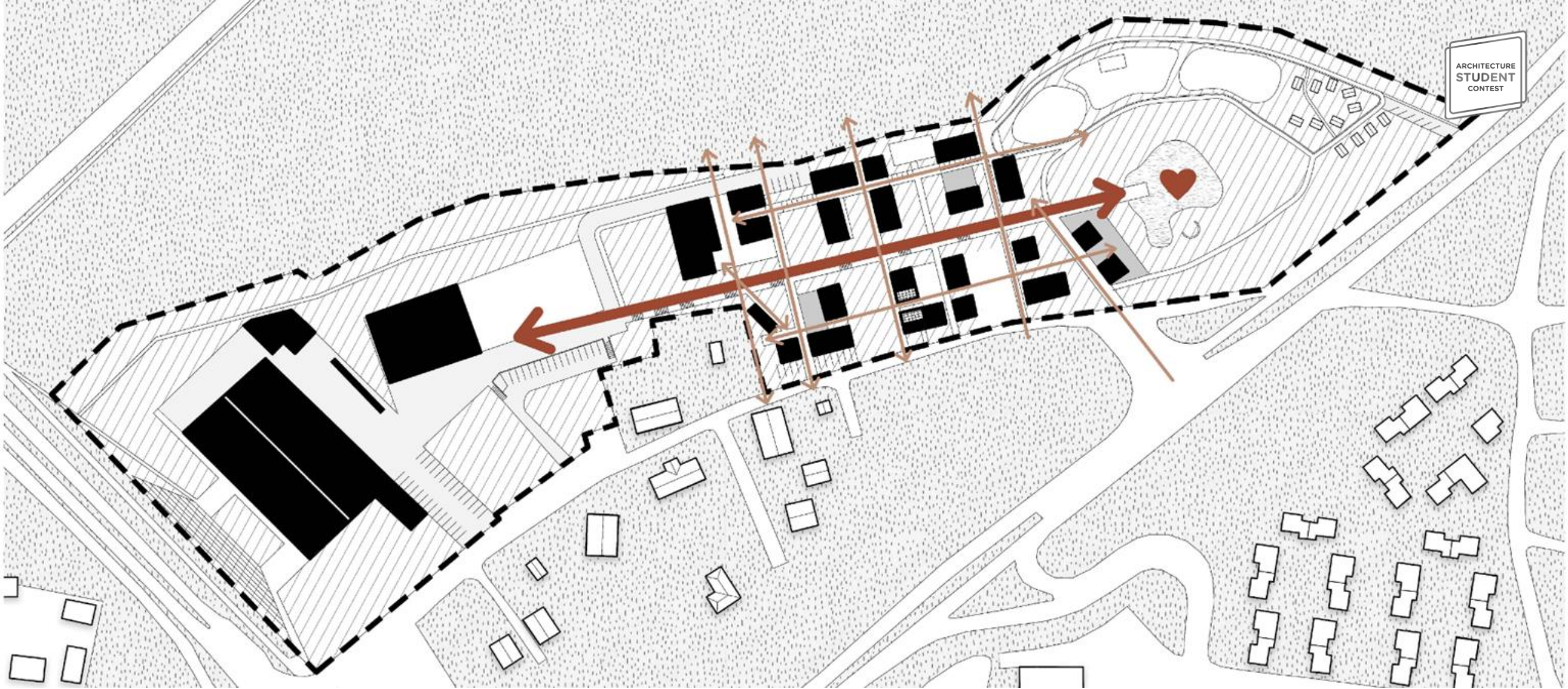
The final massing is shaped to fit the required space and terrain. It is lightened and opened up, creating captivating sightlines and a more dynamic spatial experience.



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CONTEST

SITUATION

1 le compagnons, 2 les grands atelier, 3 astus, 4 boiler room, 5 camping, 6 coworking zone, 7 lecture terrace, 8 startlab zone+ canteen, 9 accomodation zone, 10 quiet place, 11 community zone, 12 workout, 13 sports zone, 14 playground, 15 gastro zone, 16 pond, 17 prototype village, 18 event space, 19 vineyard, 20 greenhouses zone, 21 park, 22 running track, 23 forest



MAIN AXIS

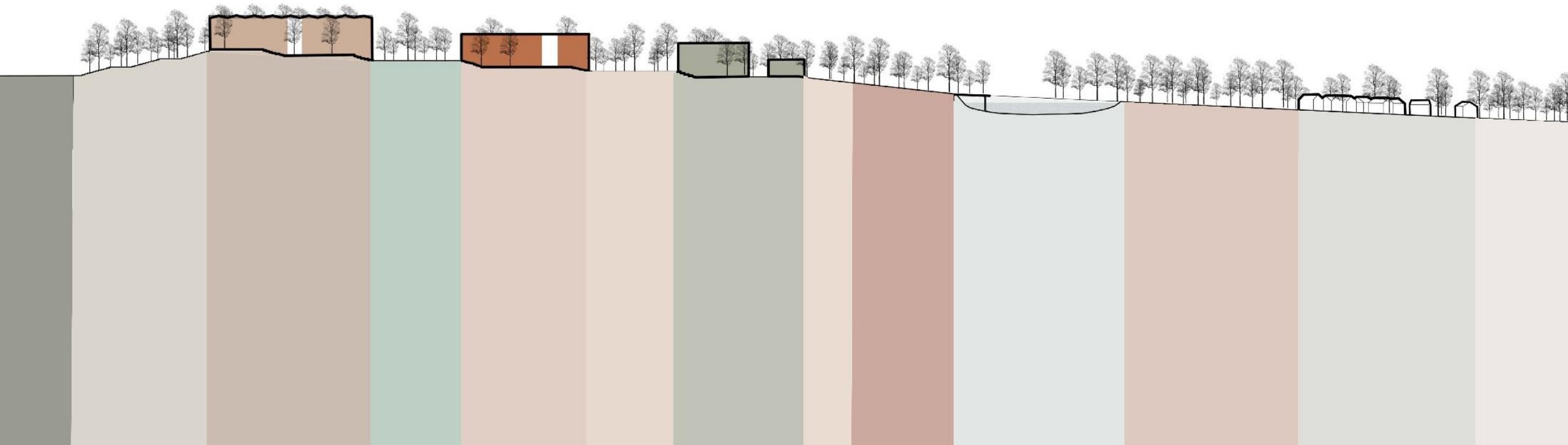
The urban design features a main axis that runs through the built environment, creating a strong visual and functional connection between the surrounding structures. This axis leads to a park with a serene lake at its terminus, offering a peaceful and recreational space for the community.



TERRAIN



A key challenge was the sloping terrain, descending 1.2 m longitudinally and 5 m transversely. We addressed it with terraced zoning and minimal leveling of 2.5 m on each side to reduce earthworks. To connect new and existing buildings, we adapted the design to the context using scale, composition, and repeated architectural elements.





COWORKING

IDENTITY LES GRANDS ATELIER

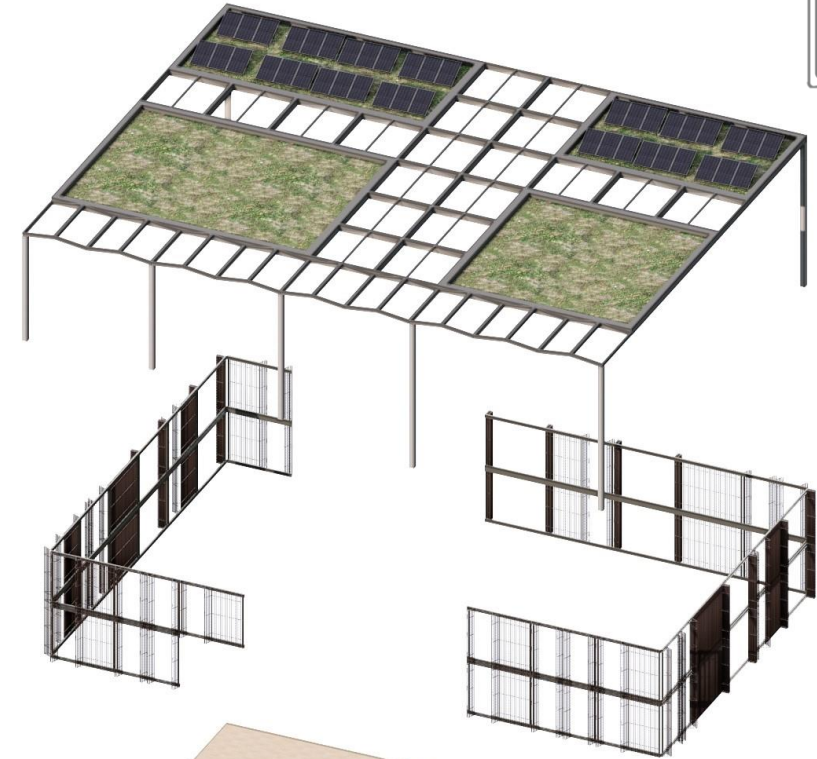
The connection via the pergola serves as a shelter that links the current building with the new structure. This architectural element creates a seamless transition between the current and new, maintaining continuity while providing a functional space for lectures and prototype exhibitions.





SUSTAINABLE ROOF DESIGN

The roof is designed with both solar panels and a green roof. The solar panels provide sustainable energy, reducing the building's carbon footprint, while the green roof enhances insulation, manages stormwater, and promotes biodiversity. This combination supports energy efficiency and environmental sustainability



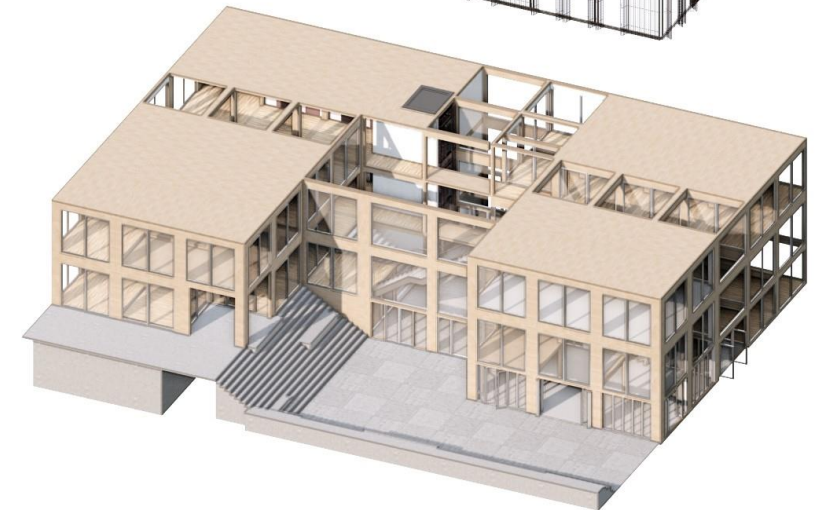
FOLDING EXTERIOR SHADING

The shading system uses vertical slats to cover 25% of the windows, reducing solar gain while allowing natural light and a view of the surrounding nature. The slats are adjustable and sliding, offering flexible control over sunlight and maintaining a connection to the outdoors.



CLT PANELS + KVH TIMBER COLUMNS

The building employs a hybrid timber structure combining CLT panels for walls and floors with KVH timber columns for vertical support. The CLT panels are cut in 600 mm modules, reducing material waste and improving transport efficiency. The structure rests on a reinforced concrete slab foundation.

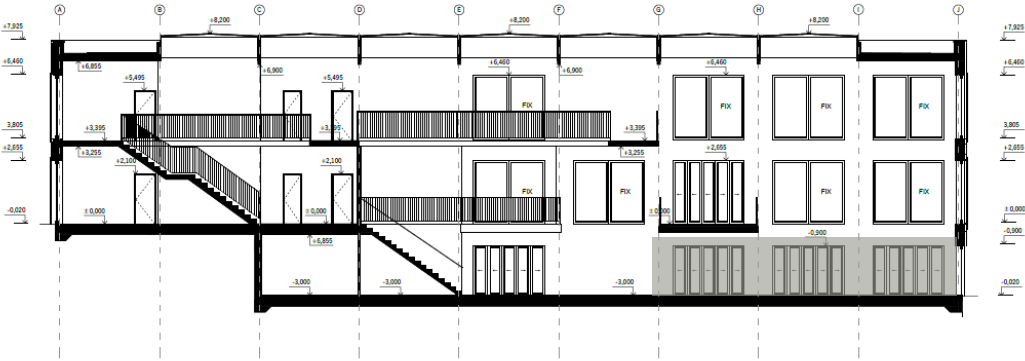


1st floor



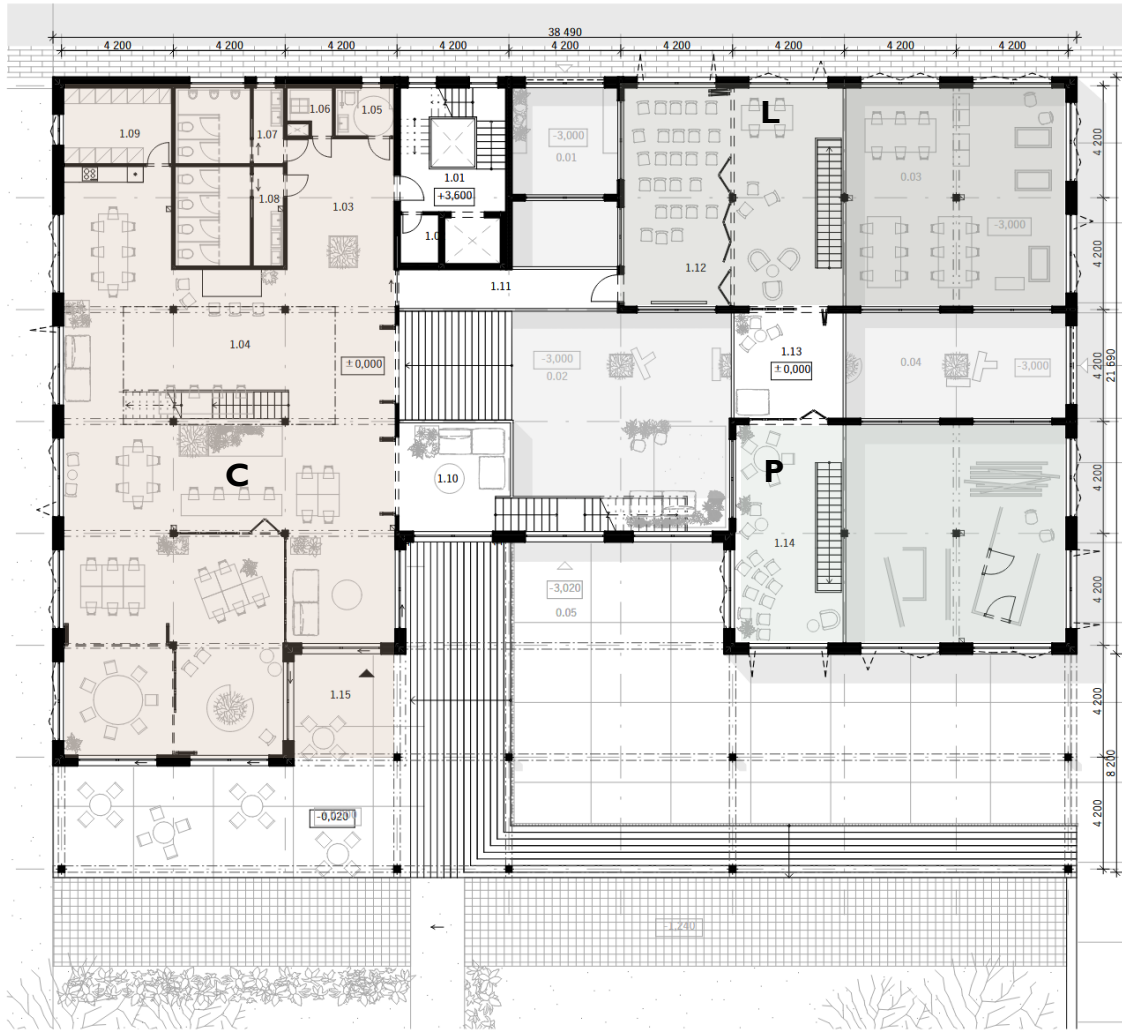
LABORATORY PROTOTYPE ROOM OUTDOOR AREA

The work floor includes a laboratory and a prototype room with direct access to the exterior. This design allows for the expansion of lecture hall capacity by seamlessly extending the space outdoors when needed, offering greater flexibility for events and activities.





2nd floor

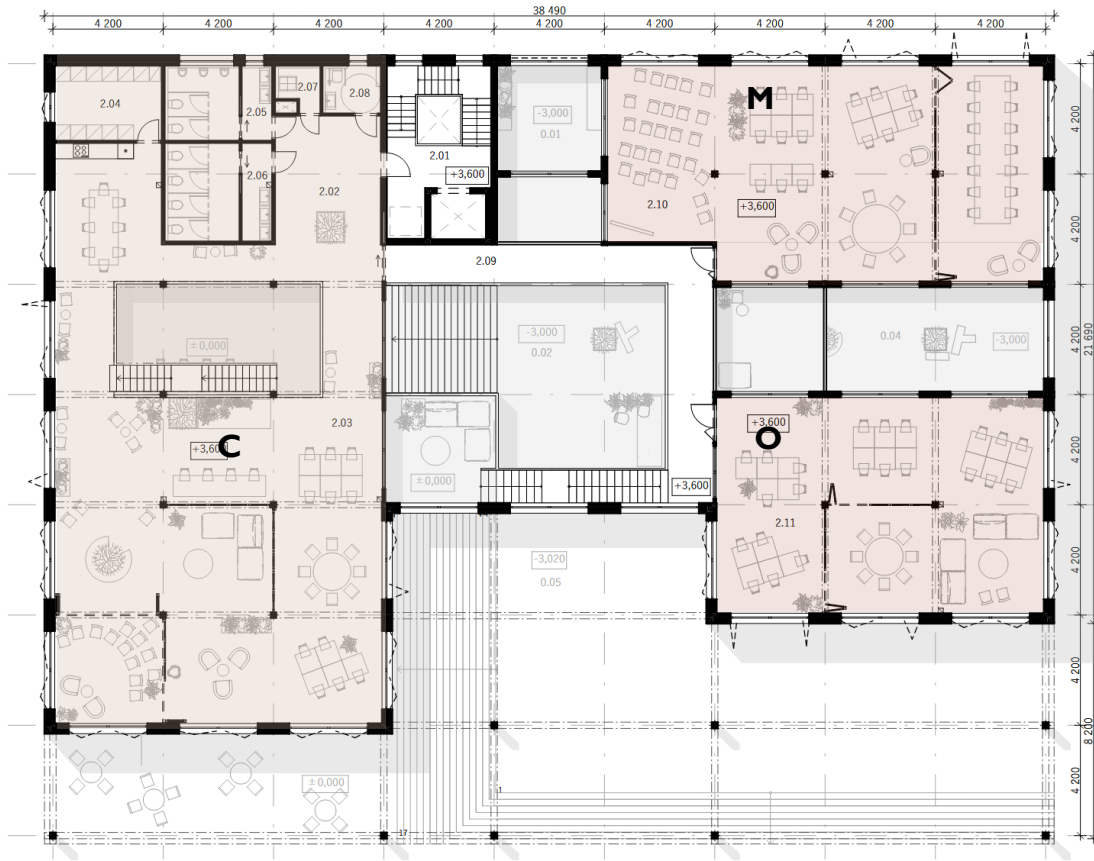


COWORKING LABORATORY PROTOTYPE ROOM

The laboratory and prototype room feature a double-height ceiling, providing an expansive and open environment. This design enhances the spatial experience, offering flexibility for large-scale prototypes and experiments. Above, the coworking area spans two levels, fostering collaboration and innovation with a dynamic, open-plan layout. This configuration encourages interaction between teams and maximizes the use of space.



3rd floor



COWORKING MEETING ROOMS OFFICE SPACES

This floor combines a collaborative coworking space for students and professionals, promoting interaction and idea exchange. It includes meeting rooms, private offices, and relaxation zones, creating a balanced environment for work and rest, fostering creativity and teamwork.





ENVIRONMENTAL PERFORMANCE

RAINWATER HARVESTING

Rainwater is collected from roofs and reused for flushing, cooling, and irrigation—reducing water demand.

DAYLIGHTING

Smart orientation and glazing maximize natural light, cut energy use, and improve indoor quality.

INTEGRATED NATURE

Green roofs and planted courtyards are integrated into the built form to improve microclimate, biodiversity, and user well-being through evapotranspiration

SUNLIGHT SHADING

External shading limit summer solar gain while maximizing winter light and views

NATURAL VENTILATION

Cross-ventilation and stack-effect strategies provide passive airflow ensuring healthy indoor air quality

WATER MANAGEMENT

A circular water strategy integrates rainwater harvesting, greywater reuse, infiltration zones, and smart drainage to minimize water waste and runoff

ENERGY PRODUCTION

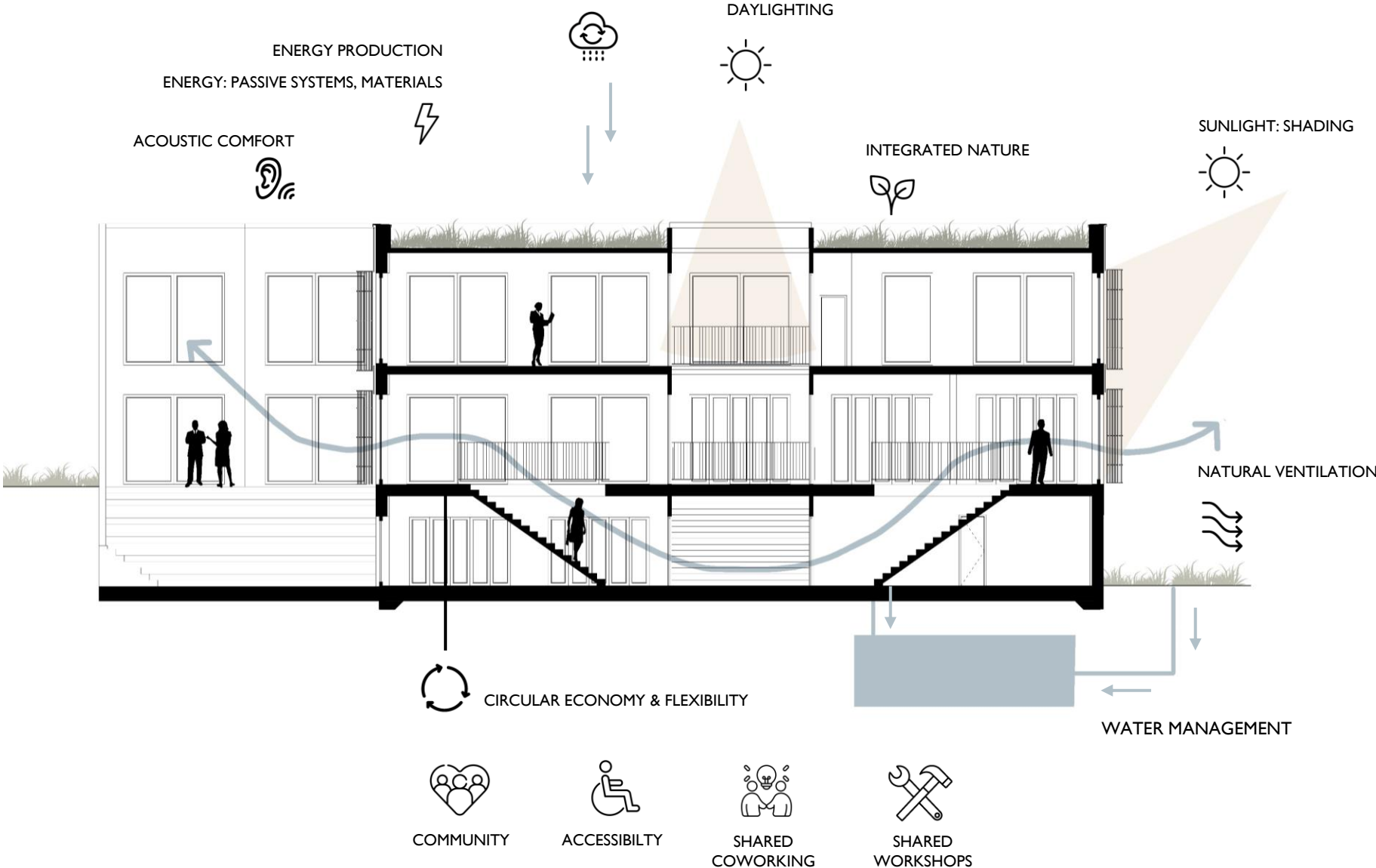
Building-integrated photovoltaics generate clean electricity to support lighting, ventilation, and charging infrastructure, lowering operational carbon

ACOUSTIC COMFORT

The building meets high acoustic comfort standards through the use of Saint-Gobain materials. Walls between units achieve airborne sound insulation of ≥ 53 dB, and ceilings between floors provide ≥ 53 dB for airborne noise and ≤ 58 dB for impact noise, ensuring quiet and comfortable indoor environments.

FIRE SAFETY COMPLIANCE

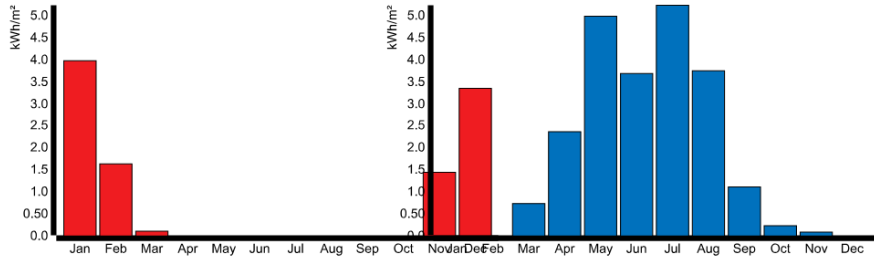
The design complies with fire safety standards by using non-combustible materials for all façade and roof elements. Evacuation paths and fire barriers were carefully considered in both material and system selection. All vertical and horizontal fire separations between floors and residential units meet EI 60 requirements, ensuring effective compartmentation and occupant safety.



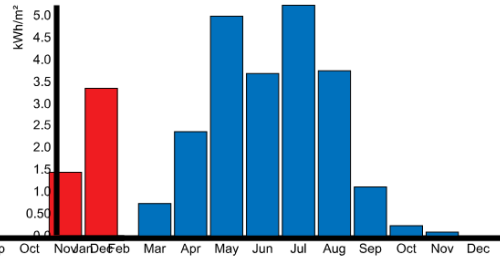
CALCULATIONS

Graphs

Heating needs



Cooling needs



Heating needs (kWh/m²)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Heating	3,97	1,63	0,09	—	—	—	—	—	—	—	1,43	3,35	10,47
Total	3,97	1,63	0,09	—	—	—	—	—	—	—	1,43	3,35	10,47

Cooling needs (kWh/m²)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Cooling	—	—	0,72	2,36	4,99	3,69	5,24	3,75	1,11	0,22	0,07	—	22,15
Total	—	—	0,72	2,36	4,99	3,69	5,24	3,75	1,11	0,22	0,07	—	22,15

*All statements without guarantee

Compliance

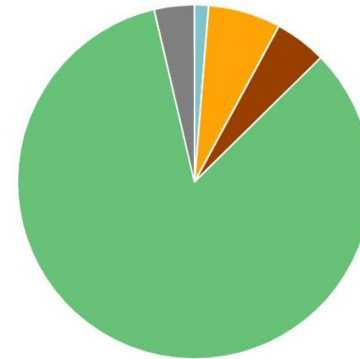
Indicator	Building [kWh/m²]	Limit value [kWh/m²]	Comply
Heating needs	10,5	15,0	Yes
Cooling needs	22,2	15,0	No

Lighting autonomy 300 Lux	Autonomy [%]	Required [%]	Comply
TZ: SPACE 1 DAYLIGHTINGCONTROLS	65,6	60,0 %	Yes
TZ: SPACE 2 DAYLIGHTINGCONTROLS	62,2	60,0 %	Yes
TZ: SPACE 3 DAYLIGHTINGCONTROLS	62,1	60,0 %	Yes

Summer comfort (overheating % of season)	Overheating [%]	Required [%]	target [%]	Comply
TZ: SPACE 1	0,0	10,0 %	5,0 %	Yes
TZ: SPACE 2	0,0	10,0 %	5,0 %	Yes
TZ: SPACE 3	0,0	10,0 %	5,0 %	Yes

Global Warming Potential total kg CO2e - Life-cycle stages

- A4 Transport - 1.3%
- A5 Construction - 6.6%
- B4-B5 Replacement - 0.0%
- B7 Water - 4.7%
- C2 Waste transport - 0.0%
- C3 Waste processing - 0.0%
- C3-biogenic Biogenic waste processing - 83.7%
- C4 Waste disposal - 0.0%
- C4-biogenic Biogenic waste disposal - 3.7%

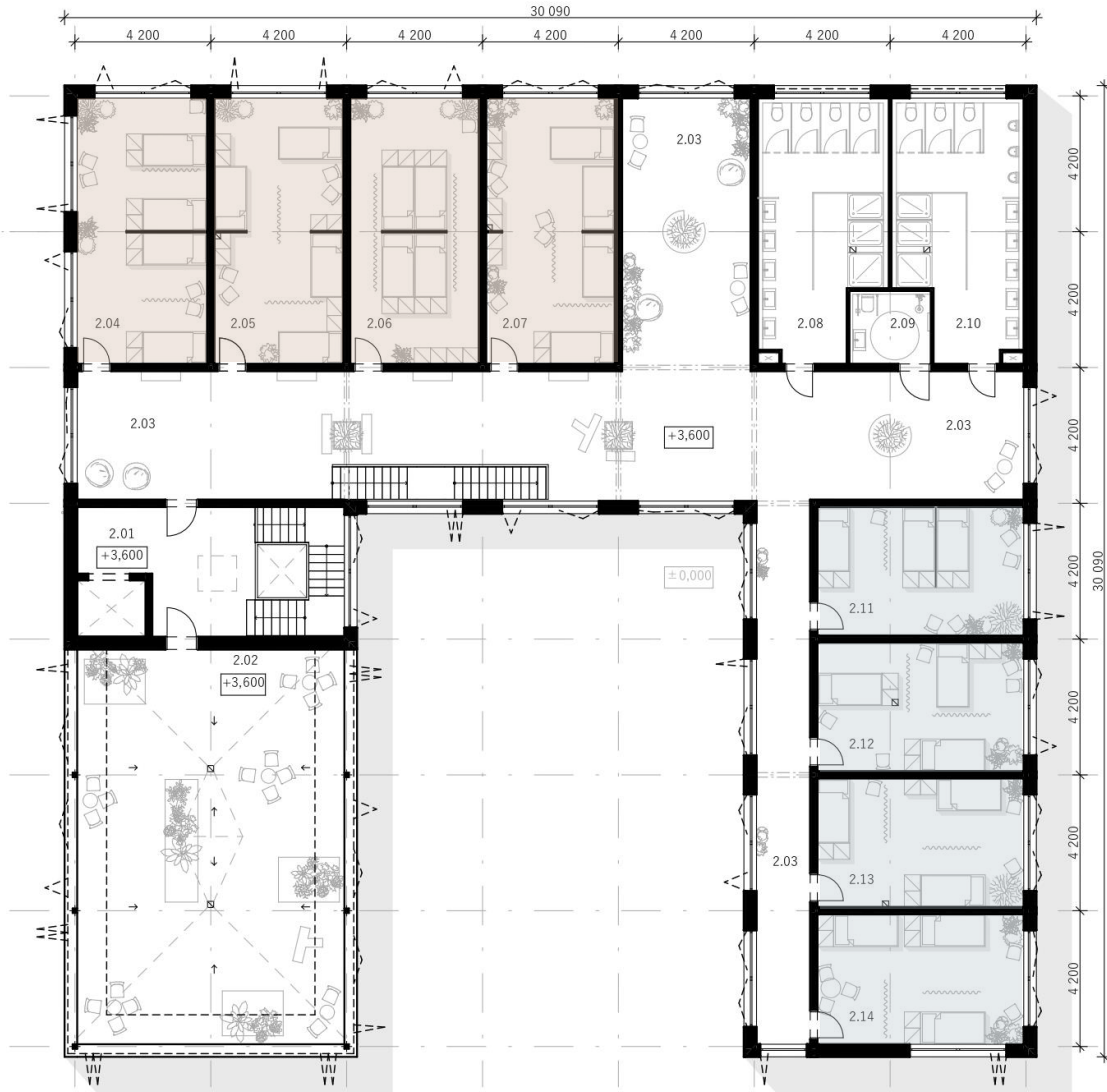


Cradle to grave (A1-A4, B4-B5, C1-C4)	kg CO _{2e} /m ²
< 350 A	184
(350-530) B	
(530-710) C	
(710-890) D	
(890-1070) E	
(1070-1250) F	
(> 1250) G	



ACCOMODATION

2nd floor



MODULARITY FUNCTION FLEXIBILITY

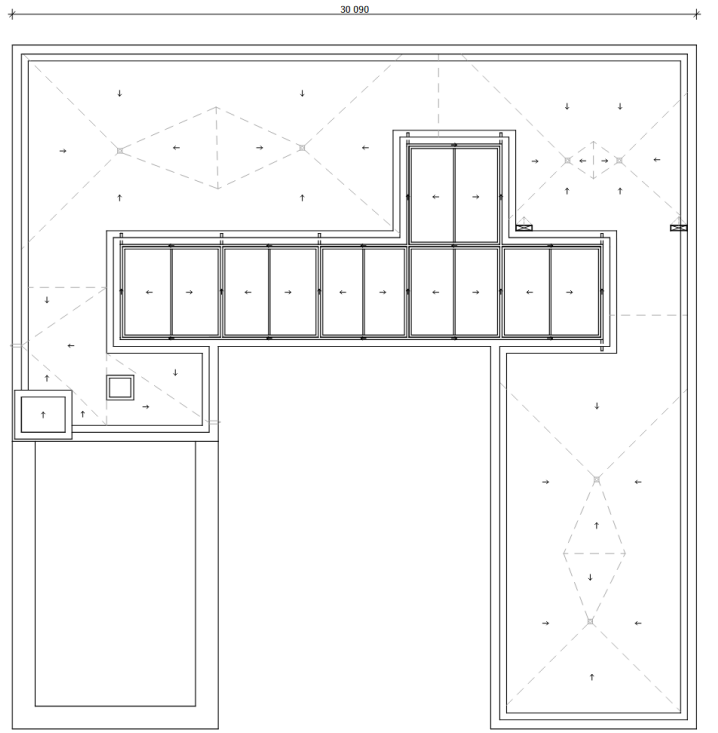
The housing layout prioritizes **functionality, modularity, and spatial flexibility** while fully addressing the competition brief. The design delivers **cost-effective accommodation** through efficient zoning and shared infrastructure.

Shared rooms are divided with **acoustic curtains**, offering both **privacy and visual separation** for individuals.

Generous corridors serve not only circulation but act as **social spaces**, encouraging interaction and community building.

The plan ensures a **clear and efficient fire escape strategy**, with **multiple exit routes, short travel distances**, and compliance with **local fire safety regulations**. All corridors lead to **designated safe exits** with visible wayfinding and accessibility for all users.





CALCULATIONS

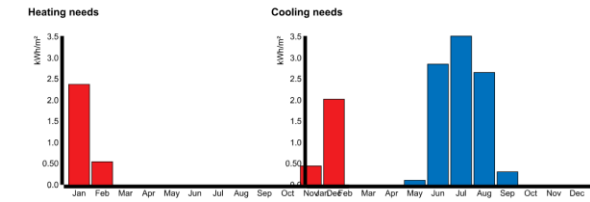
Compliance

Indicator	Building [kWh/m²]	Limit value [kWh/m²]	Comply
Heating needs	5.4	15.0	Yes
Cooling needs	9.5	15.0	Yes

Lighting autonomy 300 Lux	Autonomy [%]	Required [%]	Comply
TZ: SPACE 1 DAYLIGHTINGCONTROLS	66.2	60.0 %	Yes
TZ: SPACE 2 DAYLIGHTINGCONTROLS	65.1	60.0 %	Yes

Summer comfort (overheating % of season)	Overheating [%]	Required [%]	target [%]	Comply
TZ: SPACE 1	0.0	10.0 %	5.0 %	Yes
TZ: SPACE 2	0.0	10.0 %	5.0 %	Yes

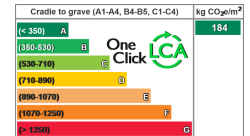
Graphs



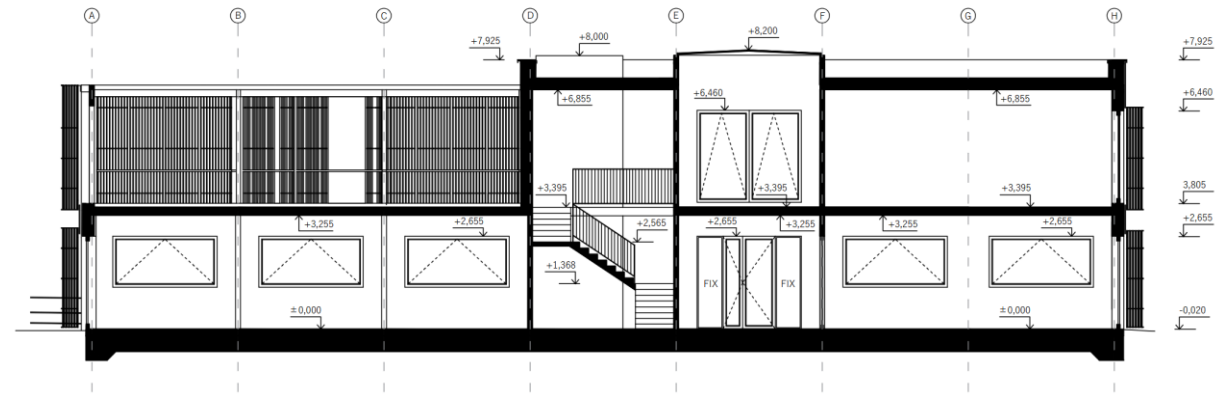
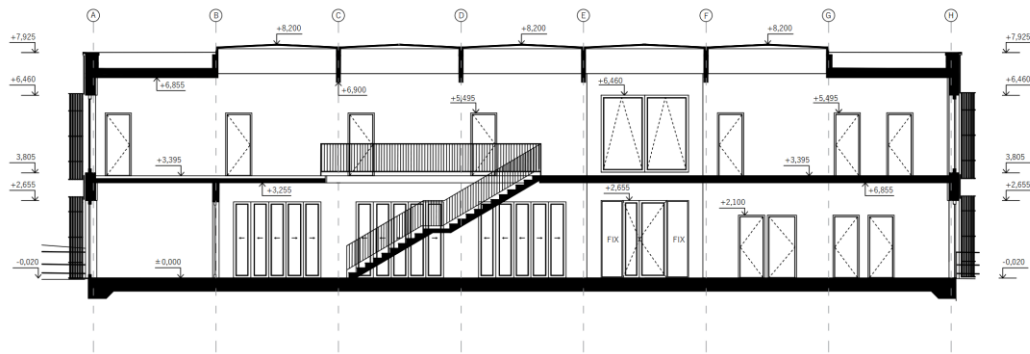
Heating needs (kWh/m²)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Heating	2.37	0.54	—	—	—	—	—	—	—	—	0.45	2.02	5.38
Total	2.37	0.54	—	—	—	—	—	—	—	—	0.45	2.02	5.38

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Cooling	—	—	—	0.1	2.86	3.52	2.66	0.31	—	—	—	—	9.45
Total	—	—	—	0.10	2.86	3.52	2.66	0.31	—	—	—	—	9.45



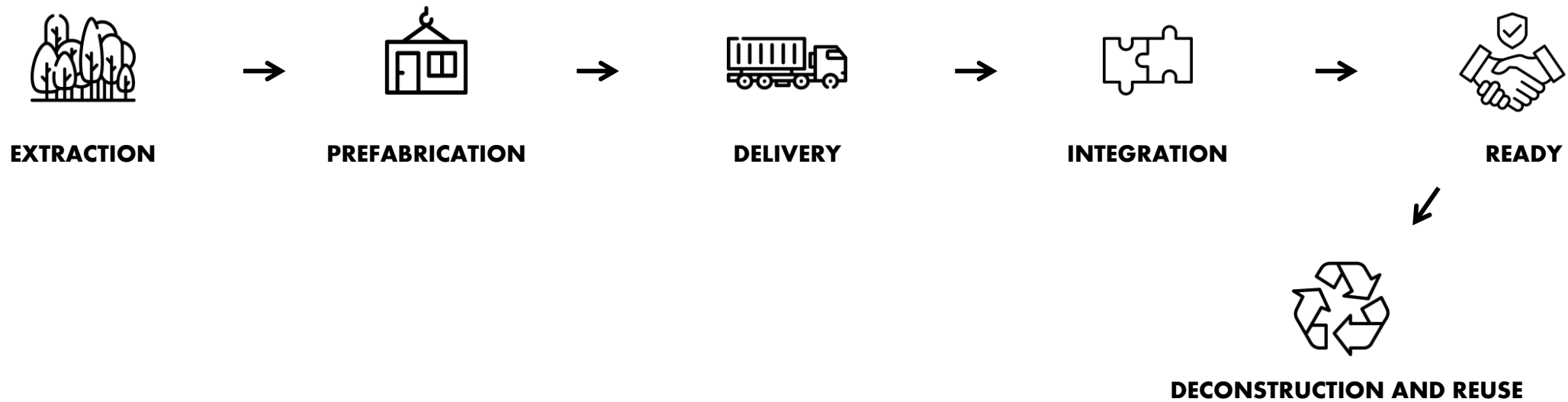
*All statements without guarantee



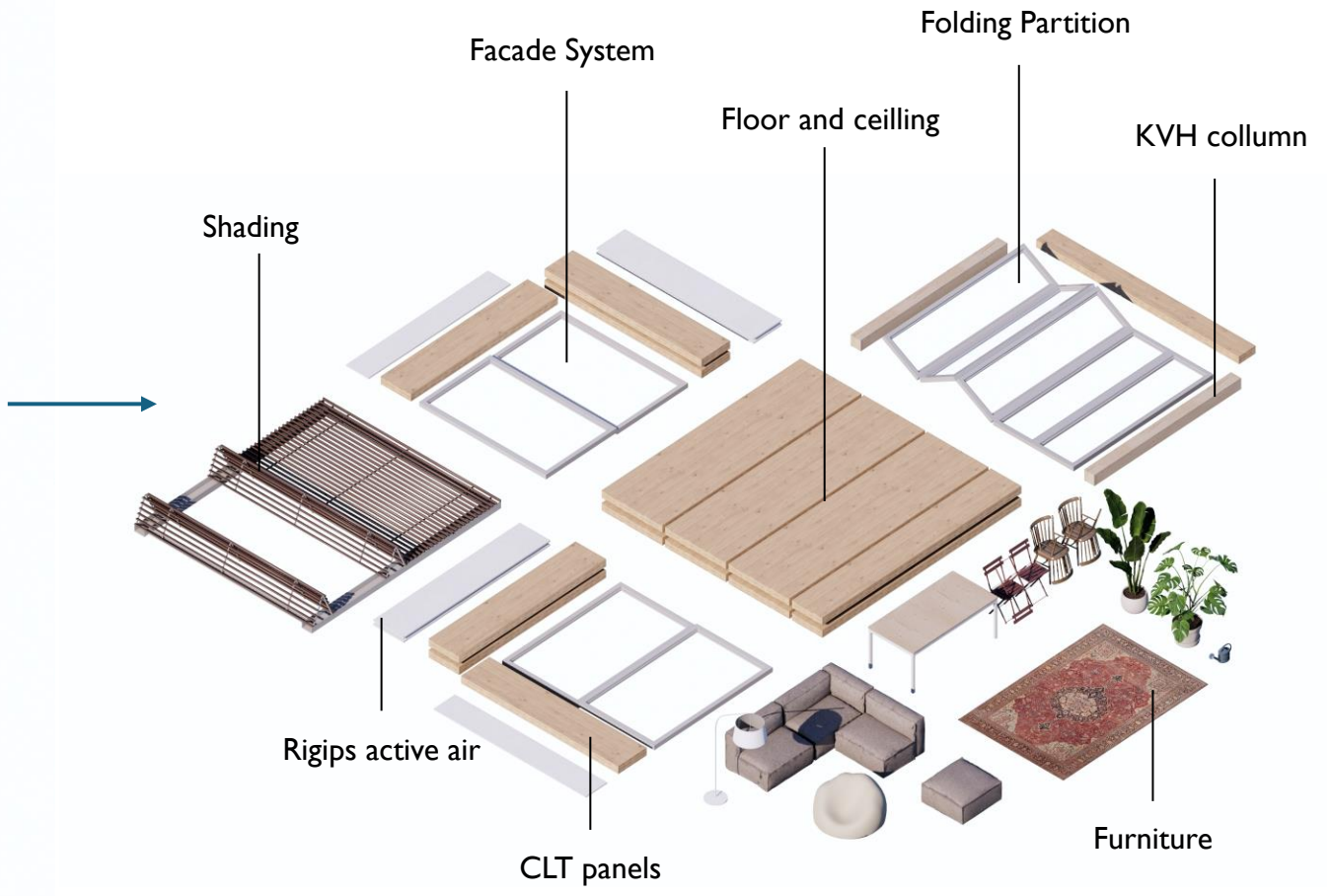


LCA

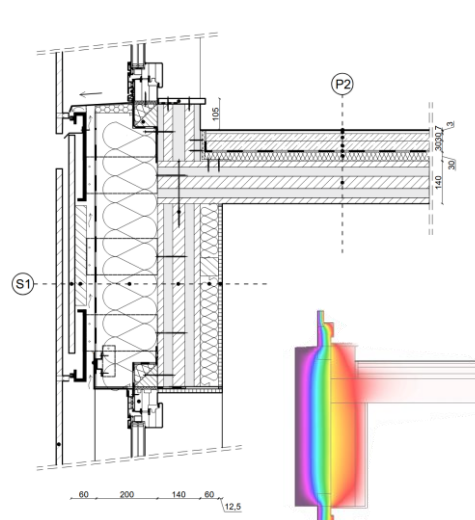
LIFE CYCLE ASSESSMENT



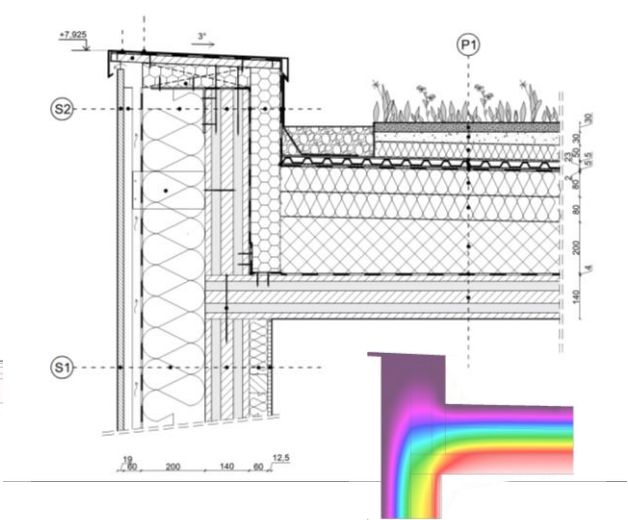
At the end of its lifecycle, the CLT structure can be dismantled and reused thanks to its modular design. The panels can be repurposed for new constructions or transformed for secondary use. If reuse is not possible, the material can be recycled or used for energy recovery, minimizing waste and extending the environmental value of the wood.



MODULARITY



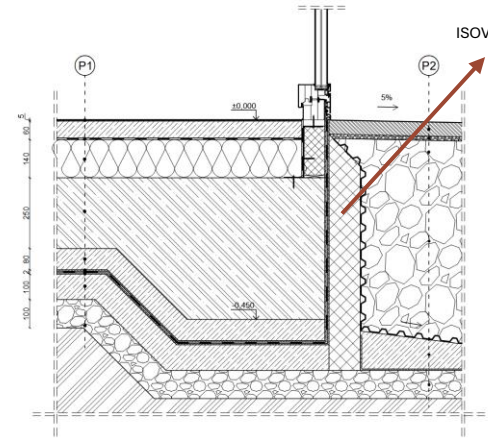
ECLAZ® Triple Glazing < 0,5 W/(m²K)



PARAPET WALL

- CLADDING - PLASTISOL-COATED ALUMINUM 0,7 mm
- mPVC WATERPROOFING MEMBRANE 2 mm
- PROTECTION LAYER 1 mm
- THERMAL INSULATION ISOVER PERIMETER 100 mm
- CLT PANEL 140 mm
- THERMAL INSULATION 200 mm
- Isover ULTIMATE Kontur FSP-032
- VERTICAL GRIDS 60/200 mm
- VENTILATION LAYER 30 mm
- WOODEN GRID 30 mm
- WOODEN EXTERIOR CLADDING 19 mm

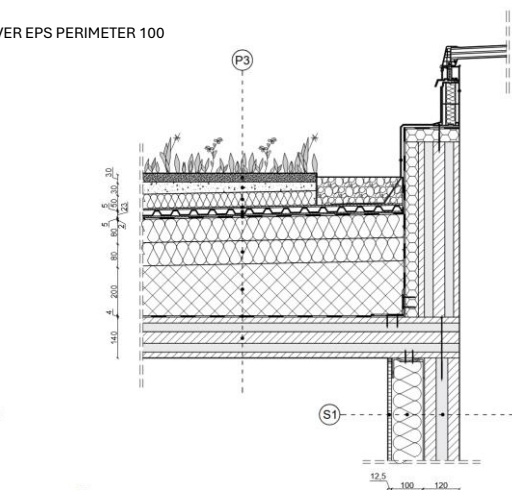
R= 10,367 m²·K/W
U= 0,094 W/(m²·K)



EXTERIOR LOAD-BEARING WALL

- RIGIPS RIGIDUR H Activ'Air 12,5 mm
- WOODEN SUBSTRUCTURE 60 mm
- ACOUSTIC INSULATION Isover Akustic TP1-040 50 mm
- CLT PANEL 140 mm
- THERMAL INSULATION Isover ULTIMATE Kontur FSP-032 200 mm
- VERTICAL GRIDS 60/200 mm
- VENTILATION LAYER 30 mm
- WOODEN GRID 30 mm
- WOODEN EXTERIOR CLADDING 19 mm

R= 9,359 m²·K/W
U= 0,105 W/(m²·K)



BASEMENT FLOOR

- WEBERSYS THIN-LAYER EPOXY COATING 1 layer
- ANHYDRITE SCREED WEBERFLOOR 4490 30 mm
- SAINT-GOBAIN ENERGY SYSTEMS 30 mm
- ELECTRIC UNDERFLOOR HEATING
- PE SEPARATION MEMBRANE 0,1 mm
- THERMAL INSULATION ISOVER EPS200S 140 mm
- REINFORCED CONCRETE FOUNDATION SLAB 250 mm
- PROTECTION MEMBRANE 0,1 mm
- CONCRETE PROTECTIVE LAYER 80 mm
- mPVC WATERPROOFING MEMBRANE 2 mm
- PROTECTION MEMBRANE 0,1 mm
- BLINDING CONCRETE 100 mm
- COMPACTED GRAVEL EMBANKMENT 100 mm

R= 4,459 m²·K/W
U= 0,214 W/(m²·K)

INTERIOR LOAD-BEARING WALL

- CLT LOAD-BEARING PANEL 120 mm
- ACOUSTIC INSULATION ISOVER UNI + GRID 100 mm
- PLASTERBOARD 12,5 mm

R= 4,101 m²·K/W
U= 0,229 W/(m²·K)

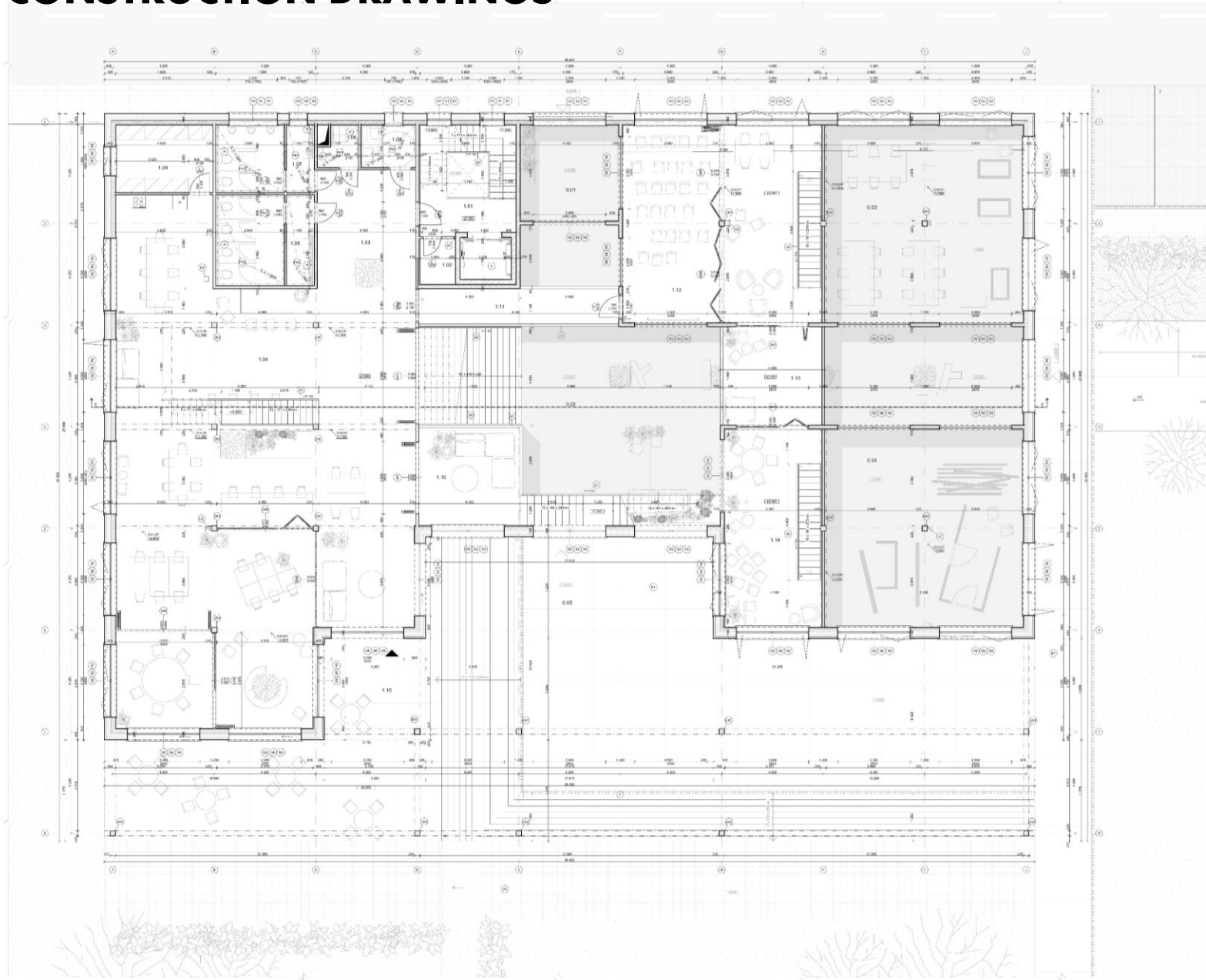
EXTENSIVE GREEN ROOF

- SEDUM MAT 30 mm
- EXTENSIVE SUBSTRATE 30 mm
- HYDRO-ACCUMULATION BOARD ISOVER FLORA 50 mm
- GEOTEXTILE 300g/m² 5 mm
- DIMPLED DRAINAGE SHEET PLATON DE 25 23 mm
- GEOTEXTILE 300g/m² 5 mm
- mPVC WATERPROOFING MEMBRANE 2 mm
- PROTECTION LAYER 1 LAYER
- THERMAL INSULATION ISOVER EPS 200S 100 mm
- THERMAL INSULATION ISOVER EPS NEOFLOOR 150 200 mm
- VAPOUR BARRIER MADE OF MODIFIED BITUMINOUS STRIPS 4mm
- CLT CEILING PANEL 140 mm

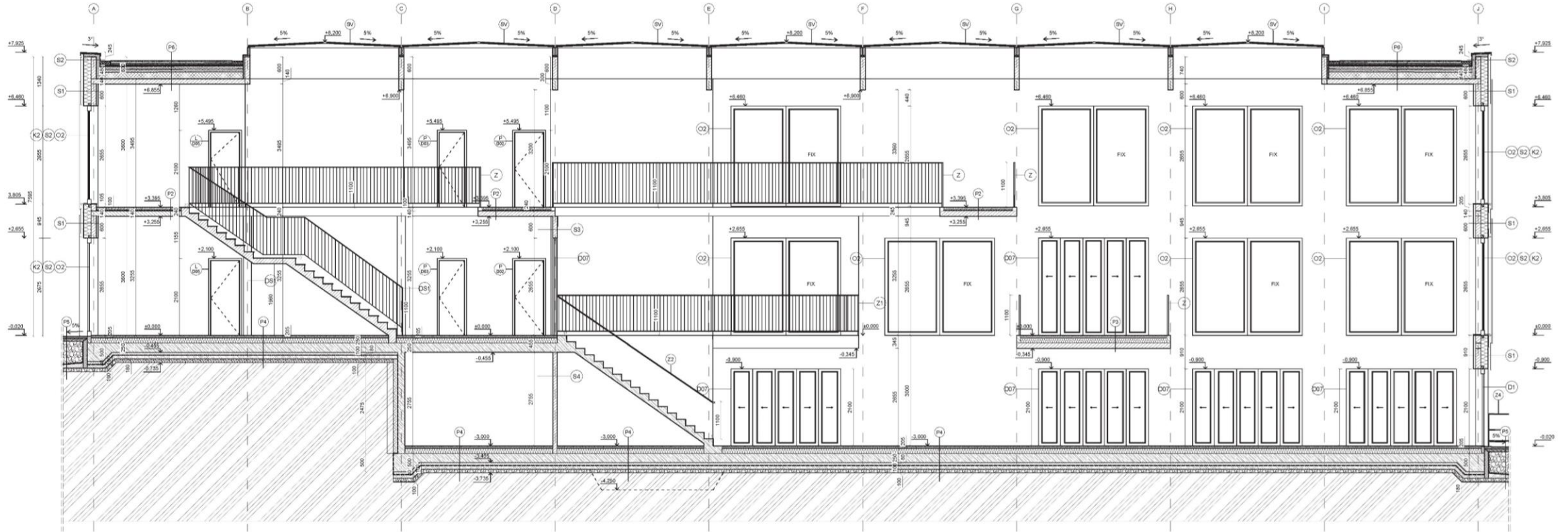
R= 10,587 m²·K/W
U= 0,093 W/(m²·K)



CONSTRUCTION DRAWINGS



SECTION





USER EXPERIENCE CLIMATE CULTURE COMFORT

Our building successfully integrates cultural values, user comfort, and climate-conscious design. Through the use of natural materials, generous daylight, and passive ventilation, it creates a healthy and inspiring environment. Shared spaces support collaboration and a strong sense of community, while references to local traditions ensure a meaningful connection to place. As a result, the building offers not only functionality and sustainability, but also a high-quality user experience that benefits both individuals and the wider community.

An aerial architectural rendering of a sustainable building complex. The scene features several interconnected buildings with flat roofs covered in greenery and solar panels. A network of walkways and stairs connects the structures. To the right, there is a large, open green space with a winding red path, a playground area with various equipment, and a blue pond. The entire development is surrounded by a dense forest of trees. The text "THANK YOU FOR YOUR ATTENTION" is overlaid in the center in a large, white, sans-serif font.

THANK YOU FOR YOUR ATTENTION